

# **Lawrence Berkeley National Laboratory Automated External Defibrillator Program**

## **I. Policy**

It is the policy of Lawrence Berkeley National Laboratory (LBNL) to maintain a safe workplace. The Health Services Group, in conjunction with Protective Services, has developed this policy and implementation plan for the consistent and uniform deployment and ongoing management of an Automated External Defibrillator (AED) program at LBNL. This policy and the implementing procedures described in it apply to both on site and off-site Laboratory locations, regardless of county location, for the treatment of victims eight (8) years of age and older.

## **II. Purpose and Scope**

Sudden cardiac arrest (SCA) claims over 400,000 American lives each year. In most cases this event occurs due to ventricular fibrillation, an abnormal heart rhythm that causes the heart muscle to fibrillate or “quiver” in a chaotic motion. If left untreated, this condition leaves the heart muscle unable to pump blood and death occurs within minutes. Because sudden cardiac arrest is one of the leading causes of death in our nation, it is a major public health problem.

Time to defibrillation is a critical variable in successful defibrillation following SCA. Statistics show that less than 5% of those who experience cardiac arrest outside of a hospital will survive. Defibrillators, however, have been shown to increase a person’s chances of survival when used immediately. The highest survival from sudden cardiac arrest occurs when the arrest is witnessed and when bystanders provide immediate cardiopulmonary resuscitation (CPR) and defibrillation within three to five minutes of the arrest.

An AED is used to treat victims who experience SCA. It is only to be applied to victims who are unconscious, without signs of circulation and normal breathing. The AED will analyze the heart rhythm and advise the operator if a shockable rhythm is detected. If a shockable rhythm is detected, the AED will charge to the appropriate energy level and advise the operator to deliver a shock.

The LBNL site is described in detail in LBNL's Emergency Plan (PUB 533). Under the LBNL umbrella are several off-site locations where emergency response will be provided by a local agency. Response time of local emergency personnel will depend on distance, availability, and scene characteristics such as heavy traffic, secured buildings and large building complexes or high-rises.

The Alameda County Fire Department (ALCO Fire) is the primary response agency for fire, rescue and medical emergencies on the main lab site. The Fire Department maintains a company of four firefighters minimally trained as Emergency Medical Technicians (EMTs) and at least one paramedic (EMT-P) on site 24/7/365. These assets are located on-site at B48 (Station 19). Emergency transport, should it be required, is handled by the City of Berkeley Fire Department or Paramedics Plus.

### **III. Implementation**

#### **A. Roles and Responsibilities**

LBNL Environment, Health and Safety Division (EHS), as the system owner, is responsible for:

- Coordination of First Aid, CPR, AED training for volunteer personnel.
- Coordination of equipment and accessory maintenance.
- Maintenance of a specifications/technical information sheet for each approved AED model assigned and location.
- Monitoring the effectiveness of this system.
- Communication with Health Services, Medical Director, Human Resources and Chief, Protective Services, on issues related to the medical emergency support program, including post event reviews.
- Maintenance of the training database of individuals who are AED trained.

Health Services/Medical Director is responsible for:

- Selection of a standard AED device.
- Medical authorization for purchase and placement of AED(s).
- Maintenance of the AED database for AED locations.
- Guidance for the AED-specific local emergency plan.
- Review of the AED-specific plans.
- Review of any instance of AED usage (in conjunction with medical response as indicated).
- Development of Publication 3000 guidance.

- Review and input for updates to the site-wide emergency plan.
- Termination of individual authorizations or program authorization when requirements are not met.

Protective Services is responsible for:

- Inventory control during regular facility and fire extinguisher inspections on site.
- Recording the operational status (per guidance provided by the manufacturer) of each unit every 30 days.
- Adherence of a DOE property ID tag on each unit.
- Reporting any missing, damaged, incomplete or non-functional units to HS/EHS.
- Initiation of recovery efforts for AED units taken off site during a response or transport.

Divisions or departments wishing to place one or more AEDs are responsible for:

- Development and submission to Health Services for review and concurrence of a local medical emergency plan that includes:
  - AED location(s).
  - Department/division point of contact for training and maintenance.
  - Names of personnel trained to use the AED.
  - Annual notification of building personnel of the location of the AED(s) and information regarding proper use.

AED-trained employees:

Any trained volunteer responder who has successfully completed an approved CPR/AED training program within the last year and has a current course completion card may use the AED. Emergency assistance and AED use is a voluntary activity.

AED trained employees providing assistance are responsible for:

- Activation of the internal medical emergency response system and providing prompt basic life support (BLS) including AED and first aid according to training and experience.
- Understanding and complying with requirements of this policy.
- Following additional procedures and guidelines for the AED program.

The AED Program Manager is responsible for:

- Maintaining a copy of post-event reviews.
- Forwarding the report(s) of AED use to the county according to State regulation and County guidelines.
- Notification to affected EMS agencies, which includes:

- Reporting annually the number of individuals currently authorized in the Laboratory's AED program.
- Terminating of individual authorizations or program authorizations when requirements are not met.

#### Volunteer Personnel:

Anyone can, at their discretion, provide voluntary assistance to victims of medical emergencies. The extent to which these individuals respond shall be appropriate to their training and experience. These volunteer personnel are encouraged to contribute to the medical emergency only to the extent they are comfortable. The emergency medical training of these individuals may include CPR, AED, or medical first aid.

### **B. Medical Direction and Control**

This program is under the medical direction of the Site Occupational Medical Director (SOMD), Pedro L. Estacio, PhD, MD, MPH. As the Prescribing Physician, the SOMD is responsible for assuring the quality, integrity, and legal compliance of the program in accordance with state and local regulations. The Prescribing Physician may delegate specific tasks to others to carry out the program, but retains overall responsibility for the program. Specific responsibilities include:

- Provision of medical direction for the use of AEDs.
- Written prescription for AEDs; the prescription authorizes use of an AED on a patient not specifically identified at the time of prescription (emergency use situation).
- Reviewing and approving guidelines for procedures related to use of AEDs and CPR.
- Evaluation of post-event review forms and digital files downloaded from the AED.

#### Rescission or termination of authorization for use of the AED

The Prescribing Physician is responsible to terminate individual authorizations or program authorization when requirements are not met. The participants in the program will be notified when authorization is rescinded along with notification to the appropriate EMS agencies.

The training, testing, skill demonstrations, and records of this program exist in a workplace environment. Individual authorization for persons in the program will be rescinded if they are no longer employed by LBNL because the prescribing physician can no longer ensure requirements are being met. This action only removes these persons from the list of authorized individuals in LBNL's AED program. It does not revoke the American Red Cross or American Heart Association

Adult CPR/AED certificate that was earned by the individual at their last annual training.

### **C. Training**

Instruction for the initial training and refresher renewal of CPR/AED training will use a course that is currently authorized by the American Heart Association (AHA) or American Red Cross (ARC) to ensure coverage of the material required in the regulations. The course will require successful completion of a written test and a skills demonstration.

Course material will include the hours and content as required by California Code. Information on the specific AED to be used, local protocols, and interface to local EMS agencies will be added to the curriculum to meet this requirement.

The program will use instructors who are currently authorized by the AHA or ARC to conduct CPR and AED training. The instructors may be LBNL employees or outside instructors contracted to provide the training.

EHS Training will maintain the list of those who have been trained under this program. A minimum of three (3) division personnel from the area around the AED location will be trained. Training data will also include the date, type of training (initial, refresher, drills), and the name and credential of the person performing the training.

- CPR and AED training should be formally renewed at least every two (2) years.
- The American Heart Association encourages skills review and practice sessions at least every six (6) months for lay persons who do not perform these skills on a regular basis.

#### Additional trained personnel

- Protective Force personnel are trained by University of California Police Department (UCPD) in accordance with the security contract, which includes First Aid/CPR/AED.
- Health Services personnel are trained in CPR/AED use at the Healthcare Provider level.

## **D. Equipment**

The designated AED for use in this program is the Phillips HeartStart OnSite Defibrillator. The Phillips FRX model defibrillator is used in Health Services and by Security Personnel (Rovers). This AED conforms to applicable state and county standards.

The AEDs will be assigned to designated locations. These locations shall be specific to allow the device to be easily used by all trained personnel. AED locations will be maintained by Health Services in a SmartSheet or other google doc accessible to local coordinators and Protective Services personnel for ease of update.

Each AED will have one set of defibrillation electrodes connected to the device and one spare set of electrodes with the AED. One resuscitation kit will be connected to the handle of the AED. This kit contains two pair latex-free gloves, one razor, one set of trauma shears, and one facemask barrier device.

All equipment and accessories necessary for support of medical emergency response shall be maintained in a state of readiness. Specific AED maintenance requirements include:

### Routine Maintenance:

- The AED will perform a self-diagnostic test every 24 hours that includes a check of battery strength and an evaluation of the internal components.
- AEDs will be checked for readiness by Protective Services personnel at least once every 30 days if the AED has not been used in the preceding 30 days.
- AEDs will be inspected, and checked as outlined Operating Instructions (Owner's) manual. Checks will include expiration dates of batteries and defibrillation electrodes. The checklist tag will be posted with the AED.
- If the green icon is NOT present on the readiness display, the AED Program Manager is notified by the person discovering the condition (local coordinator or Protective Services inspector).
- If the expiration date on the electrode is near, the AED Program Manager will be notified as above.
- Checklist tags documenting monthly checks will be kept with the AED, collected annually, and forwarded to the AED Program Manager by Protective Services inspectors. Data will include the unit number, date of maintenance or check, results, specifics of maintenance performed, and name/initials of person performing the check or maintenance.

- The Health Services office/AED Program Manager shall be informed of changes in availability of deployed AEDs and associated equipment. If equipment is withdrawn from service, Health Services shall be informed and then notified when equipment is returned to service.
- Following use of medical emergency response equipment, all equipment shall be cleaned and/or decontaminated as required. If contamination includes body fluids, the equipment shall be disinfected according to standard procedures and cleaning guidelines found in the Owner's Manual.

## **E. Quality Assurance**

### Recordkeeping

Records of all AED-related training, including the names of instructors, workplace personnel trained, courses completed, and dates of initial, renewal, or skill practice classes; records of all AED locations, service and updates will be maintained by EHS and forwarded quarterly (or as needed) to the AED Program Manager.

### Event Review and Documentation

- Medical review will be conducted for every use of an AED at an LBNL facility to ensure program quality and initiate any other follow-up deemed necessary. Health Services will maintain records of medical reviews and forward reports of AED use to the county according to state regulation and county guidelines.

Event related documentation to be forwarded to Health Services within 24 hours includes:

- Report of AED Use (included with local plan template).
- All recorded data and all electronic files captured by the AED.

An event review, to include all event participants, the SOMD and AED Program Manager, a representative from HR, and a representative from UC Care Services shall be conducted as soon as feasible following any deployment and use of an AED. Included in the review shall be the identification of actions that went well and the collection of opportunities for improvement as well as critical incident stress debriefing. **The contact number for UC Care Services is 510-643-7754.**

### Annual Program Review

Health Services and Protective Services will conduct an annual AED Program Review. This review will include the following elements:

- Review of training records

- Review of equipment operation and maintenance records
- Review for completeness of any post-event review and documentation requirements
- Review of and updates to this plan as indicated

**Coordination and Integration**

LBNLs AED Implementation Plan will be filed with the appropriate county EMS agencies and integrated with the site Emergency Plan. A "Notice of New Automated External Defibrillator Program" along with a Prescribing Physician Registration form will be provided to the appropriate EMS agencies and the Alameda County Fire Department (Station 19) upon program implementation. If a cardiac arrest occurs at an LBNL facility, a "Report of CPR or AED Use" will be sent to the PAD Coordinator in the appropriate EMS district. Health Services will report annually the number of individuals currently authorized in this AED program.

## **Requirements**

Authorization, requirements and guidance for this AED program are found in the following documents:

**California Code of Regulations, Title 22, Division 9, Chapter 1.8-** Training Standards and Utilization for Use of the Automated External Defibrillator by Non-Licensed or Non-Certified Personnel (Layperson AED regulations). Outlines training program requirements and physician and EMS agency interface.

**California Health and Safety Code, Division 2.5, Chapter 1-** Emergency Medical Services System and the Pre-hospital Emergency Medical Care Personnel Act (1797.5), which provides for statewide coordination and integration of emergency services.

**California Health and Safety Code, Division 2.5, Chapter 3-**AEDs (1797.196). Provides guidelines for maintenance and testing of equipment, EMS and prescribing physician interface, training and availability of employees and the written plan.

**Alameda and Contra Costa County Public Access Defibrillation (PAD) Policies;** these policies provide guidance for interface with local EMS agencies.

**American College of Occupational and Environmental Medicine (ACOEM) Position Statement:** Automated External Defibrillation in the Occupational Setting, April 28, 2012.